

was directed toward the embryo, and ultimately reached it, the wings were removed from several dozen fruits with embryos in early stages of development. It was expected that the embryos of these fruits would show some signs of malnutrition, but as a matter of fact none did so, showing without doubt that the hypothesis toward the testing of which the experiments were directed was false. It would appear that, if the substances which are formed in the wing are of any use to the embryo, their amount forms no important part of the food supply. It may be possible that there was some compensation of some sort, but that is not very likely. So that for the present we may adhere to the view that these organs serve a useful turn after the close of their development; and their origin, if this is true, may be explained, so far as our present knowledge takes us, only by the workings of natural selection. The whole subject of the exact function of wings in fruits is open to investigation, for it is clear that the wings which occur in dehiscent fruits cannot be interpreted in the same fashion as those in indehiscent fruits.

SHORTER NOTES

NOTE ON THE "REPORT OF THE BROWN-HARVARD EXPEDITION TO NACHVAK, LABRADOR."*—Dr. E. B. Delabarre, of Brown University, in listing the Hepaticae collected on this expedition to Labrador, states that "all seven of the hepatics here named are now reported for the first time, although three of these names can be given as yet only provisionally," and in a later note remarks, "none of these are reported by the previously-named authorities, nor by W. H. Pearson in his *List of Canadian Hepaticae* (1890)." The "previously-named authorities" do not appear to include any American students of the Hepaticae and Dr. Delabarre has evidently overlooked the most complete list of Labrador Hepaticae yet published, a list of thirty-one species collected by the late Rev. A. C. Waghorne and Mr. O. D. Allen and published by Professor Underwood in the *Bulletin of the Torrey Botanical Club* in 1892 (19: 269). Four out of the seven of Dr. Delabarre's list are reported by Professor Underwood.

MARSHALL A. HOWE.

* Bull. Geog. Soc. Phila. 3: 167-201. 1902.

THE HABITAT OF THE SLENDER CLIFF-BRAKE. — In the last two numbers of *The Fern Bulletin*, reports have been published of the occurrence of the slender cliff-brake [*Cryptogramma Stelleri* (S. G. Gmel.) Prantl, *Pellaea gracilis* (Michx.) Beddome] on sandstone rocks, and the editor comments that it seems not to have been collected previously from other than limestone rocks. I think that it will be found that this fern grows not infrequently on other than limestone formations here in the East. The most luxuriant and abundant growth that I have ever seen was in Au Sable Chasm, New York, where it is found on a strongly siliceous sandstone with no limestone in the vicinity. There are at least two stations for this fern in the region of Mount Mansfield, Vermont, where the rocks are almost entirely gneissoid in character. In 1896 I found it in Nebraska Notch, and last year Mr. W. R. Davis, of Boston, collected it on Sterling Mountain. At St. Johnsbury it grows on a mica-schist formation far removed from limestone; the rock is considerably eroded, and more soil surrounds the plants than at any other station known to me. In August I collected this fern also on mica schist in Quechee Gulf, a remarkable gorge in the town of Hartford, Vermont, which is perhaps most noteworthy from a botanical standpoint for producing *Woodsia glabella* and *W. alpina* at the elevation of no more than four hundred feet above sea level.

ST. JOHNSBURY, VT.

TRACY E. HAZEN.

NEWS ITEMS

The International Conference on Plant Breeding and Hybridization held at New York from September 30 to October 2, brought to the city a large number of botanists and horticulturists. Among the distinguished foreigners present were Mr. W. Bateson from Cambridge, England; Daniel Morris, Imperial Commissioner of Agriculture for the British Colonies at Barbadoes; Hon. William Fawcett, Director of the government plantations in Jamaica; and Mr. George Nicholson, curator of Kew Gardens, England. Papers were presented by Professor L. H. Bailey, O. F. Cook, W. M. Hays, S. A. Beach, T. V. Munson, William Saunders, and others; the program was especially interesting and provoked much discussion of the mutation theory.